

## CLAIMS

1. A surgical device, comprising:  
a handle configured to be gripped;  
a cylinder penetrator attached to said handle; and  
5 a substantially planar blade having at least a first blade edge, said blade being  
attached to a distal end of said cylinder penetrator and oriented substantially parallel to a  
main axis of said cylinder penetrator and configured to produce a substantially planar opening  
in a body tissue for an insertion of a surgical cannula.

2. The surgical device according to claim 1, further comprising:  
10 said blade having a first and second blade edge, wherein:  
said blade being oriented substantially parallel to said main axis of said cylinder  
penetrator.

3. The surgical device according to claim 2, wherein a tip portion of said blade is  
substantially located along said main axis of said cylinder penetrator.

4. The surgical device according to claim 1, further comprising a guard moveable  
15 with respect to said blade to cover said at least first blade edge.

5. A surgical device, comprising:  
a handle configured to be gripped;  
a cylinder penetrator having a main axis and attached to said handle;  
20 a substantially planar blade having a cutting tip located at a distal end of said cylinder  
penetrator; and  
an insufflation passageway configured to discharge a pressurized fluid while said  
cutting tip is inside a body tissue and transport said pressurized fluid across said body tissue  
when said cutting tip substantially penetrates the body tissue.

6. The surgical device according to claim 5, wherein said surgical device further  
25 comprises:

an external reservoir configured to supply said insufflation passageway with said pressurized fluid.

7. The surgical device according to claim 6, wherein said surgical device further comprises:

5 a check valve between said insufflation passageway and an exterior of the surgical device, configured to prevent leakage from said insufflation passageway.

8. The surgical device according to claim 5, wherein said insufflation chamber is configured to pressurize during an insertion of said cutting tip into said body tissue.

9. The surgical device according to claim 5, wherein said pressurized fluid is a gas.

10 10. The surgical device according to claim 7, wherein said check valve is a flap valve.

11. The surgical device according to claim 5, wherein said insufflation passageway passes through said cylinder penetrator.

12. The surgical device according to claim 5, wherein:  
15 said planar blade includes a plurality of cutting edges configured to intersect substantially at the main axis of said cylinder penetrator; and  
said insufflation passageway is defined in part by said blades.

13. A surgical device, comprising:  
a handle configured to be gripped;  
20 a cylinder penetrator having a main axis and attached to said handle;  
a substantially planar blade having a cutting tip located at a distal end of said cylinder penetrator;  
a tissue expander located at a distal end of said cylinder penetrator and configured to expand a tissue cut by said cutting tip for insertion of said cylinder penetrator; and  
25 a guard configured to expose said cutting tip while said cutting tip is beginning to cut

a tissue layer and while said cutting tip is in said tissue layer, and to progressively cover the end of said cutting tip immediately after a most distal point of said cutting tip has substantially passed through said tissue layer

14. The surgical device of claim 13, wherein said blade comprises:  
5 a plurality of blade edges configured to intersect at a position distal to said cylinder penetrator and substantially along said main axis.

15. The surgical device of claim 14, wherein said guard comprises:  
a safety guard positioned substantially parallel to said blade.

16. The surgical device of claim 15, wherein said guard further has a safety guard  
10 edge angle smaller than a blade edge angle of said blade.

17. The surgical device of claim 13, further comprising:  
a spring configured to allow translation of said guard responsive to a force generated during a driving of said cutting tip into and through said tissue layer.

18. The surgical device of claim 13, wherein said tissue expander further comprises:  
15 tissue expander faces located slightly proximal to said cutting tip.

19. The surgical device of claim 13, further comprising:  
a penetration monitor configured to indicate a position of said guard relative to said cutting tip.

20. A surgical device, comprising:  
20 a handle configured to be gripped;  
a cylinder penetrator having a main axis and attached to said handle;  
a substantially planar blade having a cutting tip located at a distal end of said cylinder penetrator;  
a tissue expander configured to expand a tissue cut by said cutting tip for insertion of  
25 said cylinder penetrator; and

a guard configured to have substantially no contact with said tissue during a penetration of said tissue by said cutting tip.

21. The surgical device of claim 20, wherein said guards are slidably affixed between said tissue expander and said cutting tip.

5           22. A surgical device, comprising:  
a handle configured to be gripped;  
a cylinder penetrator having a main axis and attached to said handle;  
a substantially planar blade cutting tip located at a distal end of said cylinder  
penetrator;  
10           a guard configured to slidably cover and uncover said cutting tip; and  
a locking mechanism configured to hinder an accidental uncovering of said cutting tip  
by said guard.

23. A surgical device, comprising:  
a handle configured to be gripped;  
15           a cylinder penetrator having a main axis and attached to said  
handle;  
a substantially planar blade cutting tip located at a distal end of said cylinder  
penetrator wherein said handle includes at least one side horn configured to facilitate pushing,  
pulling, rotation, and tilting of said surgical device.

20           24. The surgical device of claim 23, further comprising:  
a cannula attached to a removable portion of said handle.

25           25. A surgical device, comprising:  
means for gripping said surgical device;  
means for passing an object of interest into a substantially planar hole;  
means for cutting said hole for insertion of said means for passing; and  
means for halting said means for cutting.

26. The surgical device of claim 25, wherein said means for halting comprises:  
means for guarding said means for cutting.

27. The surgical device of claim 25, wherein said means for halting comprises:  
means for insufflating a tissue beneath said means for cutting.

5 28. A method of inserting a cannula into an individual, comprising steps of:  
cutting a substantially planar hole in a body tissue layer using a cutting tip, said hole  
being suitable for the insertion of a cannula;  
forcing simultaneously a pressurized fluid into said hole thereby inserting said  
pressurized fluid beneath said body tissue layer; and  
10 halting said cutting.

29. The method according to claim 28, wherein said pressurized fluid is a gas.

30. The method according to claim 28, wherein said cutting tip is a blade  
edge of a substantially planar blade.

15 31. The surgical device according to claim 5, wherein said at least first blade edge is  
positioned so as to intersect with said main axis of said cylinder penetrator.

32. The surgical device according to claim 1, wherein said cylinder penetrator is  
hollow.

33. The surgical device according to claim 1, wherein said first blade has two cutting  
edges.